

TOSHIBA GATE TURN-OFF THYRISTOR LOW SNUBBER TYPE

# SG600GXH26

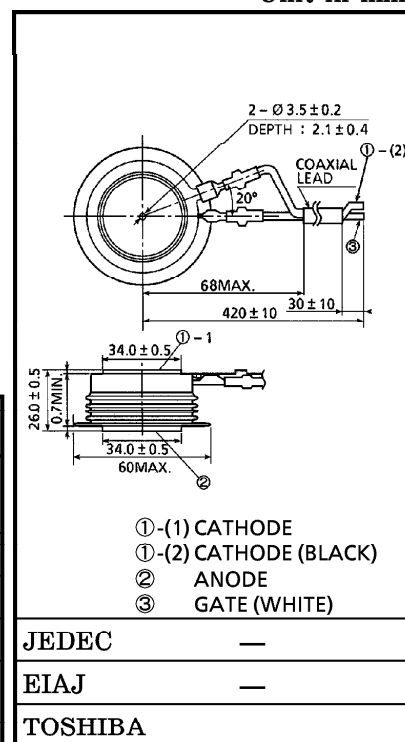
INVERTER APPLICATION

Unit in mm

- Repetitive Peak Off-State Voltage :  $V_{DRM} = 4500V$
- R.M.S On-State Current :  $I_T (RMS) = 300A$
- Peak Turn-Off Current :  $I_{TGQM} = 600A$
- Critical Rate of Rise of On-State Current :  $di/dt = 600A/\mu s$
- Critical Rate of Rise of Off-State Voltage :  $dv/dt = 1200V/\mu s$

## MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-state Voltage, (Note. 1)	$V_{DRM}$	4500	V
Repetitive Peak Reverse Voltage	$V_{RRM}$	16	V
Peak Turn-Off Current (Note. 2)	$I_{TGQM}$	600	A
R.M.S On-State Current (Note. 3)	$I_T (RMS)$	300	A
Peak One Cycle Surge On-State Current (non repetitive, 10ms width half sine waveform)	$I_{TSM}$	4000	A
Critical Rate Of Rise Of On-State Current (Note. 4)	$di/dt$	600	A / $\mu s$
Peak Gate Current	$I_{GM}$	280	A
Average Gate Power Dissipation	$P_G (AV)$	55	W
R.M.S Gate Current (Note. 5)	$I_G (RMS)$	35	A
Peak Reverse Gate Voltage (at Static)	$V_{RGM}$	16	V
Operating Junction Temperature Range	$T_j$	-40~125	°C
Storage Temperature Range	$T_{stg}$	-40~150	°C
Mounting Force	—	$11.8 \pm 1.2$	kN



Weight : 320g

Note. 1  $V_{GK} \leq -2V$ Note. 2  $V_{DM} \leq 4000V$ ,  $C_s \geq 0.5\mu F$ ,  $di_{GQ}/dt \geq 20A/\mu s$ ,  $L_s \leq 0.2\mu H$  ( $V_{DSP} \leq 650V$ )Note. 3 50Hz Half Sine Waveform at  $T_f \leq 85^\circ C$ Note. 4  $V_D \leq 2250V$ ,  $I_{GM} \geq 20A$  ( $t_r \leq 1\mu s$ )Note. 5 Ambient Temperature of coaxial gate-cathode lead  $\leq 90^\circ C$ 

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## ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Repetitive Peak Off-State Current	$I_{DRM}$	$V_{DRM}=4500V$ , $V_{GK}=-2V$ , $T_j=125^{\circ}C$	—	—	20	mA
Repetitive Peak Reverse Current	$I_{RRM}$	$V_{RRM}=16V$ , $T_j=125^{\circ}C$	—	—	10	mA
Repetitive Peak Reverse Gate Current	$I_{RGM}$	$V_{RGM}=16V$ , $T_j=125^{\circ}C$	—	—	10	mA
Peak On-State Voltage	$V_{TM}$	$I_{TM}=600A$ , $T_j=125^{\circ}C$	—	—	4.0	V
Gate Trigger Voltage	$V_{GT}$	$V_D=24V$ , $R_L=0.1\Omega$	$T_j=-40^{\circ}C$	—	1.5	V
			$T_j=25^{\circ}C$	—	1.0	
Gate Trigger Current	$I_{GT}$		$T_j=-40^{\circ}C$	—	4.5	A
			$T_j=25^{\circ}C$	—	1.5	
Turn-On Delay Time	$t_d$	$V_D=2250V$ , $I_{TM}=600A$ , $di/dt=600A/\mu s$ , $I_{GM}=20A$ ( $t_r=1\mu s$ ), $T_j=25^{\circ}C$	—	—	3.0	$\mu s$
Turn-On Time	$t_{gt}$		—	—	10.0	$\mu s$
Critical Rate Of Rise Of Off-State Voltage	$dv/dt$	$V_{DRM}=3000V$ , $V_{GK}=-2V$ , Exponential Rise, $T_j=125^{\circ}C$	1200	—	—	$V/\mu s$
Storage Time	$t_s$	$I_{TGQ}=600A$ , $V_D=2250V$ , $V_{DM}=4000V$ , $C_S=0.5\mu F$ , $T_j=125^{\circ}C$ , $di_{GQ}/dt=20A/\mu s$ , Off Squeeze Current $\geq 500mA$	—	—	15	$\mu s$
Gate Turn-Off Time	$t_{gq}$		—	—	17	$\mu s$
Gate Turn-Off Current	$I_{GQ}$		—	250	—	A
Tail Time	$t_{tail}$		—	—	40	$\mu s$
Thermal Resistance (Junction to Fin)	$R_{th(j-f)}$	DC	—	—	0.045	$^{\circ}C/W$

